

#### REMARKS

Applicants appreciate the examination of the present application that is evidenced by the Official Action of November 14, 2008. Nonetheless, Applicants request reconsideration of the outstanding rejections of the claims under 35 USC 102(e). In particular, Applicants respectfully request the Examiner to reconsider his interpretation of the description of FIGS. 9 and 12 in US Patent No. 6,542,391 to Pereira et al. (the "'391 patent").

Applicants acknowledge that FIG. 9 of the '391 patent discloses four CAM blocks 802(0) - 802(3) having block indexes assigned thereto by the main priority encoder 806. As disclosed at Cols. 19-20 of the '391 patent, the block indexes may be initially programmed as "00" for CAM block 802(0), "01" for CAM block 802(1), "10" for CAM block 802(2) and "11" for CAM block 802(3). (See, e.g., '391 patent, Col. 19, lines 27-36). Based on this initial programming of the block indexes, the match priorities of the CAM blocks are arranged as follows: CAM 802(0) > 802(1) > 802(2) > 802(3). However, if one or more of the CAM blocks 802 are found to be defective or are otherwise disabled, the block indexes stored in the main priority encoder 806 are modified. For example, if CAM block 802(0) and 802(2) are disabled, then the main priority encoder 806 will be programmed to store a block index of "00" for CAM block 802(1) and a block index of "01" for CAM block 802(3), which means the match priorities of the two remaining CAM blocks are arranged as follows: 802(1) > 802(3). (See, e.g., '391 patent, Col. 19, lines 40-53).

Applicants submit, however, that this programmability of the CAM block indexes supports only one-way changes in match priority caused by removal of a CAM block, but not random changes in match priority that enable reverse-order combinations of match priority, as recited by many of the independent claims of the present application. For example, as illustrated by the main priority encoder 1200 of FIG. 12 of the '391 patent (a/k/a 806 in FIG. 9), a sequential arrangement of multiplexers 1202(0)-1202(2) and logic OR gates 1208, 1210 provides only one-direction (i.e., left-to-right) programmability of the match priorities.

Accordingly, the '391 patent provides no disclosure or suggestion of any priority resolution circuit that would enable:

- (i) CAM block 802(1) in FIG. 9 to have higher priority relative to CAM block 802(0), or
- (ii) CAM block 802(2) to have higher priority relative to CAM blocks 802(1) or 802(0), or
- (iii) CAM block 802(3) to have higher priority relative to CAM blocks 802(2) or 802(1) or 802(0).

In stark contrast to these limited disclosures of the '391 patent, the embodiments of the present application illustrated by at least FIGS. 1-6, enable a greater freedom of assignments to the programmable match priorities (i.e., "soft" priorities) of the CAM blocks. For example, as explained with respect to FIG. 2 of the present application, any one of the hit signals HIT0-HIT7 can be programmed to have a higher, lower or equal priority relative to any of the other hit signals, and the same is true for all other hit signals. Thus, as an example, CAM block 12g in FIG. 2 can have higher priority than CAM block 12h or vice versa. Likewise, the N=8 CAM blocks 12a-12h in FIG. 2 of the present application can have any of the following N! (e.g, 8-factorial = 40,320) soft priority relationships:<sup>1</sup>

12a>12b>12c>12d>12e>12f>12g>12h, or  
12a>12c>12b>12d>12e>12f>12g>12h, or  
12a>12d>12b>12c>12e>12f>12g>12h, or  
12a>12e>12b>12c>12d>12f>12g>12h, or  
12a>12f>12b>12c>12d>12e>12g>12h, or

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<sup>1</sup>Actually, the embodiments of the present application can support greater than N! combinations of match priority whenever multiple CAM blocks are allowed to have the same "soft" priority, which means the "hard" priority resolution circuit is used to resolve "ties" in soft priority (See, e.g., "TIE" condition in FIG 2.).

12h>12g>12f>12e>12d>12c>12a>12b, or

12h>12g>12f>12e>12d>12c>12b>12a

Thus, as recited by independent Claims 1, 6, 15, 19, 22-24, 30, 46, the "soft" (i.e., programmable) match priorities associated with any two hit signals (or CAM array blocks) can be swapped, which means that a greater number of combinations of priority order can be handled by the claimed priority resolution circuits. For example, as many as N-factorial combinations of priority order can be handled for the case where no two soft match priorities can be the same. However, more than N-factorial combinations can be handled for the case where two or more soft match priorities can be the same.

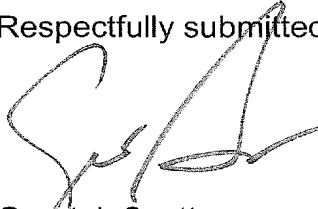
In contrast, the main priority encoder 806 of FIG. 9 of the '391 patent, which is illustrated as encoder embodiment 1200 in FIG. 12, can only support the following 10 priority combinations between the N=4 CAM blocks:

1. 802(0)>802(1)>802(2)>802(3);
2. 802(0)>802(2)>802(3);
3. 802(0)>802(1)>802(3);
4. 802(0)>802(1);
5. 802(0)>802(2);
6. 802(0)>802(3);
7. 802(1)>802(2)>802(3);
8. 802(1)>802(2);
9. 802(1)>802(3);
10. 802(2)>802(3);

Applicants submit, therefore, that because all independent claims (and many dependent claims) have been amended to further highlight the additional degrees of priority resolution described herein, which are not disclosed or suggested by US Patent No. 6,542,391 to Pereira et al., all claims are in condition for allowance.

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Respectfully submitted,

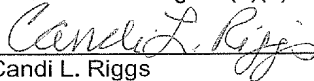


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